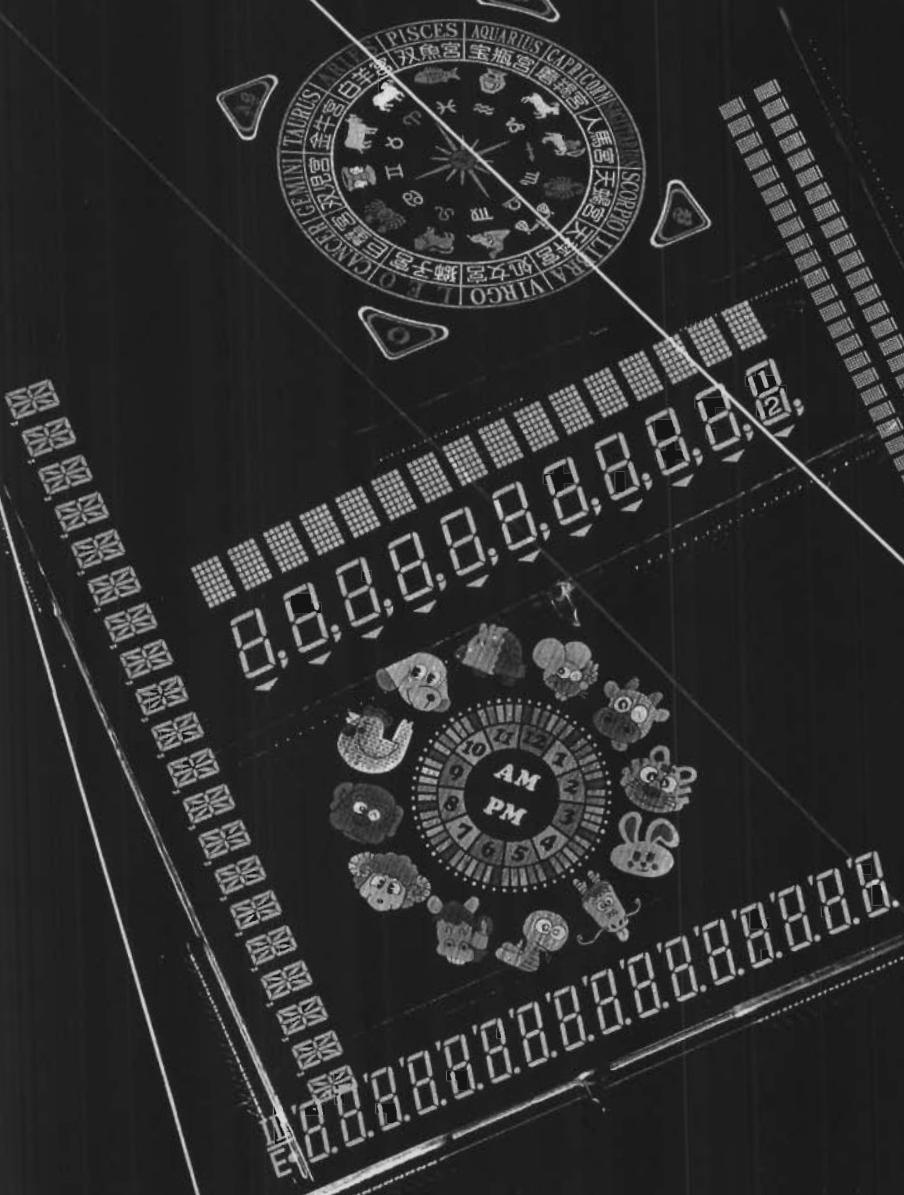


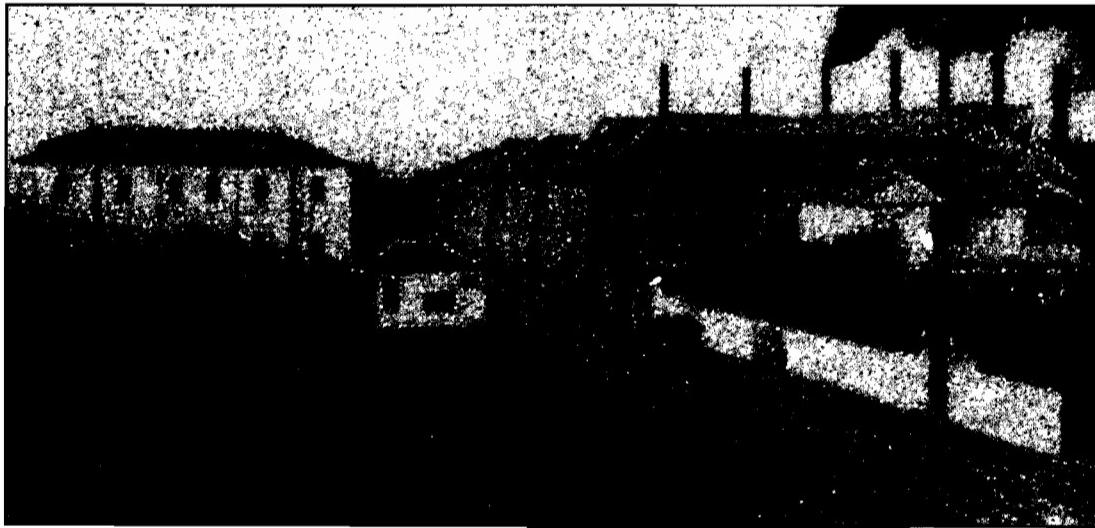
*Noritake*



# **itron®**

## VACUUM FLUORESCENT DISPLAYS

# *Noritake ... A Tradition of Quality*



The Noritake factory, 1910.

When Noritake was founded in 1904, the company's mandate was to provide products and services of the highest quality and of the most advanced technical sophistication.

Since 1967 when Dr. Tadashi Nakamura invented the vacuum fluorescent display tube, Noritake has been acclaimed throughout the world for the reliability, technical excellence and brightness of its VFD products.

#### **High Reliability**

- Wide reliability level from Commercial to MIL specs
- Temperature range: -62° C to +85° C
- Long life time: 50,000 hours to half brightness

#### **High Quality**

- Bright and uniform luminescence
- Quality controlled with MIL-STD-105 sampling plan
- 100% screening inspection for luminescent and electrical parameters

#### **High Brightness**

- 685 cd/m<sup>2</sup> (or 200 fL) typical luminescence
- Special use: 3000 cd/m<sup>2</sup> (or 880 fL) typical luminescence

#### **Low Power**

- Available from 6 mW/digit (depending on display size)
- 20% less power than LED's

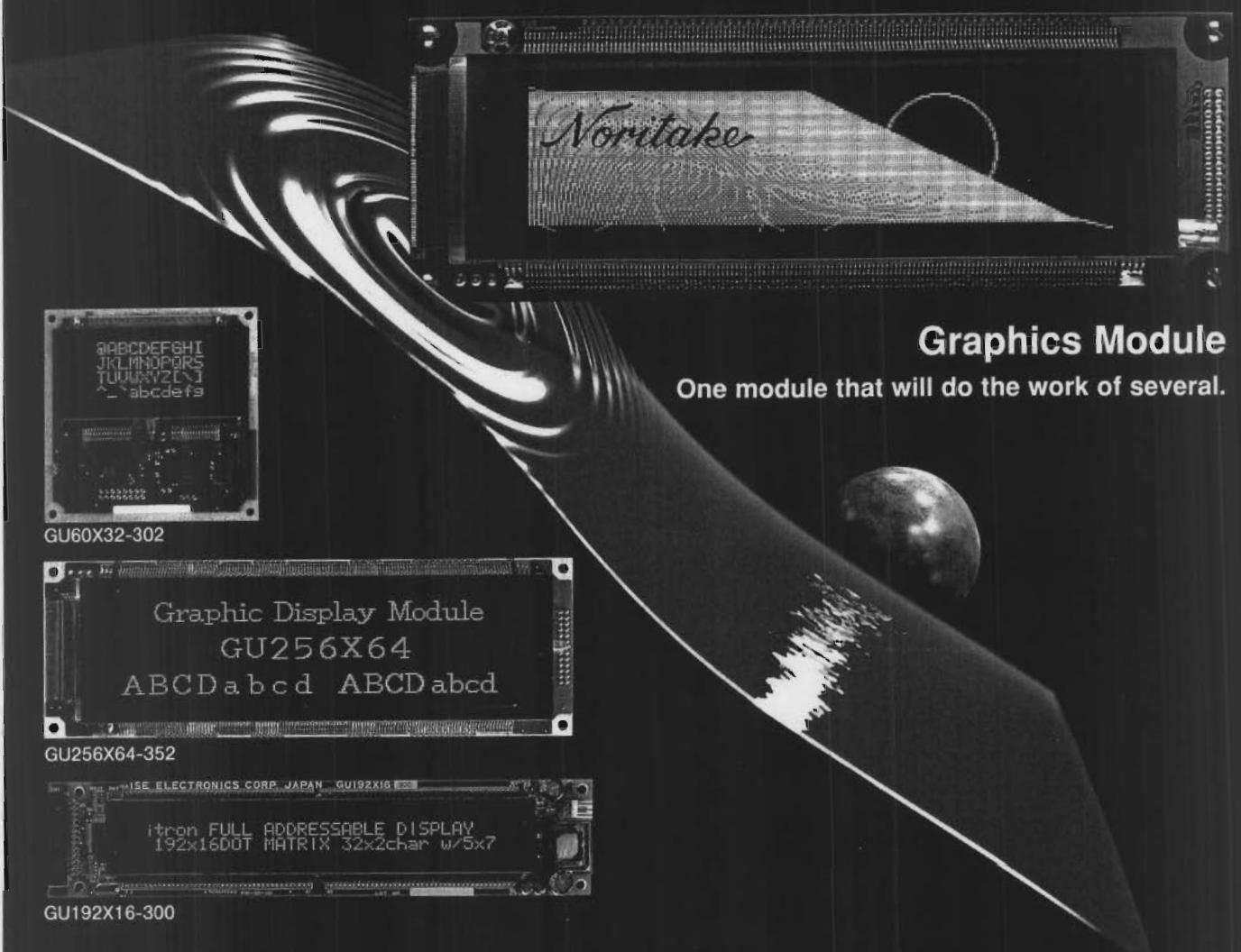
NORITAKE VFD MODULES  
NEW COMPACT T-SERIES

**T-Version Module**  
**Small Size ... Big Value**

- Low power
- Long-term reliability
- Easy user interface
- Surface mount technology
- Parallel and serial input
- Built-in test function
- ASCII, European, Japanese Katakana characters
- Many modules to choose from
- 5V operation
- Flickerless/quick mode
- 4 step luminance control

Part Number	Number of Characters	Character Height (mm)	Display Area (mm)	PC Board Size (mm)	Character Format	Supply Current (mA)	No. of UDFs*	Weight (grams)
CU165ECPB-T2J**	1 x 16	5	62 x 5	100 x 28	■■■■■	250	16	40
CU205SCPB-T20A	1 x 20	5	92 x 5	128 x 32	■■■■■	130	8	55
CU209SCPB-T20A	1 x 20	9	111 x 9	164 x 34	■■■■■	300	8	70
CU2015SCPB-T20A	1 x 20	15	250 x 15	300 x 60	■■■■■	800	8	250
CU406SCPB-T20A	1 x 40	5	179 x 6	226 x 40	■■■■■	350	8	110
CU16025SCPB-T20A	2 x 16	5	62 x 14	96 x 35	■■■■■	150	16	65
CU20025SCPB-T20A	2 x 20	5	79 x 15	124 x 40	■■■■■	320	8	70
CU20026SCPB-T20A	2 x 20	5	100 x 16	155 x 39	■■■■■	320	8	100
CU20029SCPB-T20A	2 x 20	9	162 x 24	205 x 47	■■■■■	700	8	170
CU200211SCPB-T60A 271	2 x 20	11	196 x 29	248 x 69	■■■■■	1200	4	280
CU40026SCPB-T20A	2 x 40	5	189 x 16	240 x 43	■■■■■	700	2	150
CU20045SCPB-T23A	4 x 20	5	90 x 26	150 x 64	■■■■■	400	2	120
CU20049SCPB-T20A 370	4 x 20	9	164 x 42	222 x 74	■■■■■	1100	2	380
CU200413SCPB-T20A	4 x 20	13	209 x 59	266 x 126	■■■■■	1800	2	800

\* User Definable Fonts \*\* Serial input only; test function not available Write or call for our complete catalog, application notes and specification sheets.



## Graphics Module

One module that will do the work of several.

**The GU Series Modules have been specifically designed for demanding applications that require a high quality compact graphic or multi-line character display.**

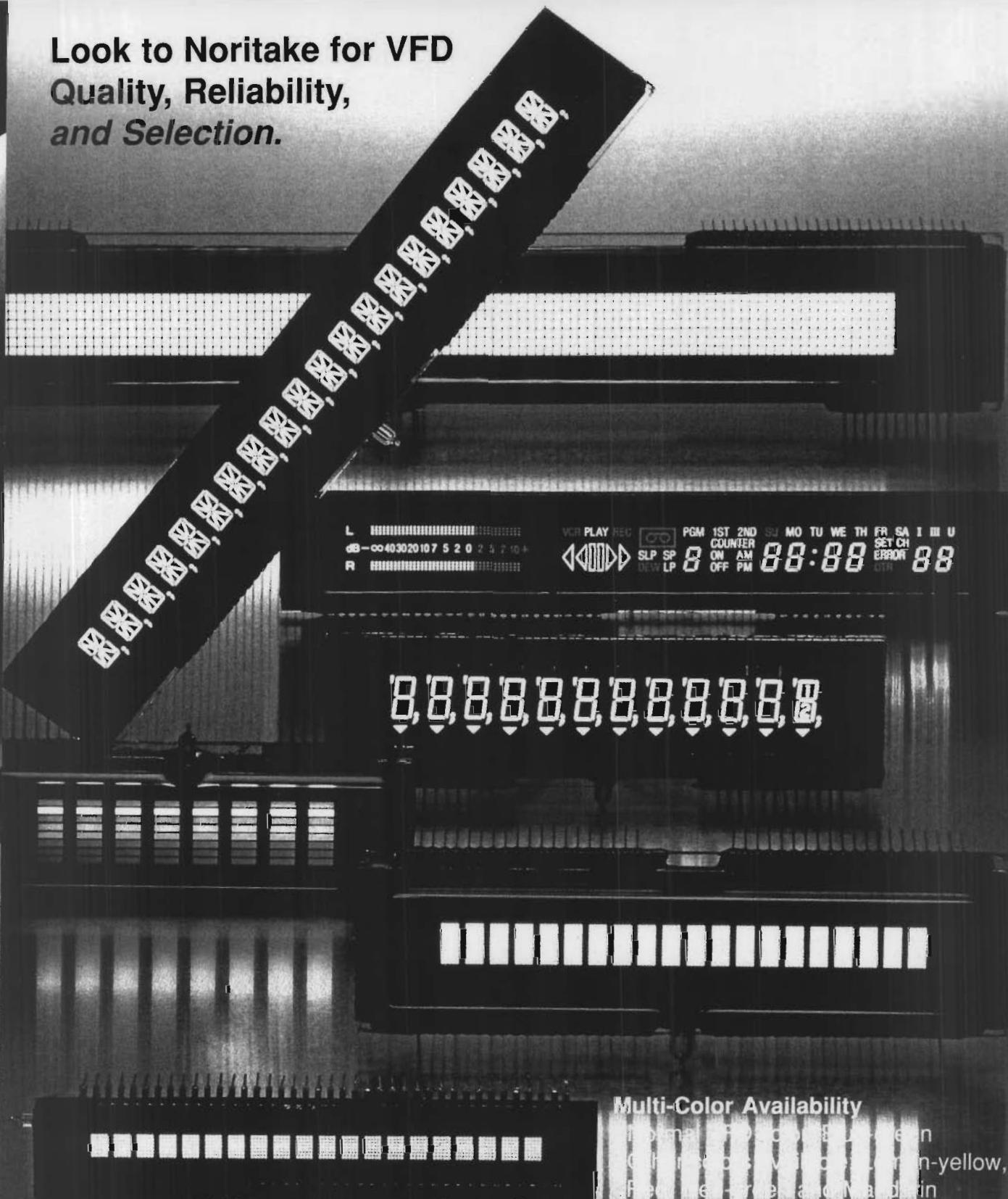
### Features:

- Single 5V DC supply
- 2 active display screens
- Data read and write mode
- Flicker free scroll and flash
- Built-in character generator
- Bright Vivid Blue-green display
- High speed 8 bit data bus interface

Part Number	Number of Display Dots	Dot Pitch (mm)	Display Area (mm)	PC Board Size (mm)	Supply Current (mA)	ASIC		Display Capacity		4 Step Luminance Control
						Font Format	C.G.*	No. of Char. Page	No. of Graphic Page	
GU60X32-302**	60 x 32	0.75	45 x 24	91 x 91	150	6 x 8	YES	—	—	—
GU192X16-304	192 x 16	0.8	153 x 13	230 x 45	800	—	—	—	20	YES
GU256X16-302	256 x 16	1.2 x 1.6	307 x 25	354 x 72	1,500	—	—	—	16	YES
GU256X32-302	256 x 32	0.65	166 x 21	220 x 60	600	6 x 8	YES	8	4	YES
GU128X64-302	128 x 64	0.65	83 x 41	170 x 78	900	6 x 8	YES	8	8	YES
GU256X64-312	256 x 64	0.4	102 x 25	166 x 45	1,000	6 x 8	YES	8	4	YES
GU256X64-332	256 x 64	0.55	140 x 35	200 x 70	1,000	6 x 8	YES	8	4	YES
GU256X64-352	256 x 64	0.65	166 x 41	230 x 78	1,400	6 x 8	YES	8	4	YES

Japanese Character (KATAKANA) Fonts models are also available. \* C.G.: Character Generator \*\* 12V power supply  
Write or call for our complete catalog, application notes and specification sheets.

**Look to Noritake for VFD  
Quality, Reliability,  
and Selection.**



#### A Wide Selection of Standard Packages

- 7-segment numerals
- 14/16-segment alpha numerics
- 5 x 7/5 x 12 dot characters
- Bar-segment analogs
- Dot matrix graphics
- Any other symbolics (mimic display)

#### Multi-Color Availability

Normal red-orange-red-green  
Color models available in green-yellow,  
Red-orange-yellow and Magenta

#### Custom Design

- Wide selection from standard packages
- Custom configurations incorporating Alphanumeric, Bar segment, Dot Matrix, and custom symbols are available
- Flexibility in design patterns
- Excellent engineering support

# Noritake

## Japan

Noritake Co., Limited  
1-36, Noritake Shinmachi 3 Chome  
Nishi-Ku, Nagoya 451, Japan  
Tel. 052-562-0336  
Fax 052-581-1679

### Boston

Noritake Co., Inc.  
945 Concord St., Suite 118  
Framingham, MA 01701  
Tel. 508-626-0811  
Fax 508-626-0429

### Chicago

Noritake Co., Inc.  
2635 Clearbrook Dr.  
Arlington Heights, IL 60005  
Tel. 708-439-9020  
Fax 708-593-2285

### Dallas

Noritake Co., Inc.  
2454 Dallas Trade Mart  
Dallas, TX 75207  
Tel. 214-742-9389  
Fax 214-747-5065

### Los Angeles

Noritake Co., Inc.  
2050 E. Vista Bella Way  
Compton, CA 90220  
Tel. 310-603-9770  
Fax 310-603-9810

### New Jersey

Noritake Co., Inc.  
75 Seaview Dr.  
Secaucus, NJ 07094  
Tel. 201-319-0600  
Fax 201-319-1962

### Canada

Noritake Canada Ltd.  
90 Nugget Avenue  
Aigincourt, Ontario M1S 3A7 Canada  
Tel. 416-291-2946  
Fax 416-292-0239

### Europe

Noritake Europa GmbH.  
Frankfurter Strasse 97-99  
W-6096 Rauhheim, Germany  
Tel. 06142-43095/96/97  
Fax 06142-22799